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Ambystoma rosaceum Taylor, 1941, the Tarahumara Salamander (Caudata: Ambystomatidae), a new state record for Aguascalientes, México

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Abstract: We report an adult male specimen of the salamander *Ambystoma rosaceum* from the oak forest and grassland habitats in the Sierra Fría located in the Municipality of San José de Gracia, Aguascalientes, México. This specimen represents the first state record of *A. rosaceum* for Aguascalientes and extends the known distribution of the species through the southern portion of the Sierra Madre Occidental.

Key words: Caudata, Tarahumara Salamander, Mesa Montoro, Aguascalientes

Ambystoma rosaceum is a medium sized salamander reaching 85 mm snout-vent length (SVL) and 152 mm in total length (TL) (Lemos-Espinal et al. 2013). Metamorphosis occurs regularly and neoteny is infrequent. Size at metamorphosis is variable: 48–62 mm SVL, 98–121 mm TL. The transformed adults lack gills, 10–12 costal grooves with a mean of 11 between the limbs, and the digits are slender not webbed. Larvae are reddish or pinkish with dense black marks or reticulations, immaculate pinkish below. Metamorphosed individuals are dark brown, nearly black, with small whitish or yellowish spots, frequently restricted laterally, but can occur on the dorsum. The venter is brownish to cream; sometimes dim light spots may be present in the gular region or on the sides of tail. The tail is slightly compressed laterally with a weakly developed dorsal tail fin and profusely supplied with glands which tend to form a ridge on the proximal third to half of the tail. Scattered patches of glands occur over the body with a heavy concentration forming a parotid gland (Taylor 1941; Anderson 1961; Anderson 1978).

This is a species of the Sierra Madre Occidental, endemic to México, extending from northeastern Sonora to western Zacatecas, including Chihuahua, Durango, Jalisco, Nayarit and Sinaloa, from altitudes of 1,000–3,110 m (Canseco-Márquez et al. 2007; Lemos-Espinal et al. 2013; Ahumada-Carrillo et al. 2014). Terrestrial adults live in pine-oak, pine, fir forest, grassland at high elevations. Larvae inhabit slow, meandering streams, strongly flowing, rocky streams, wells and artificial, spring-fed pools (Anderson 1978; Anderson and Webb 1978). This species is listed by the IUCN as Least Concern (LC) and by Norma Oficial Mexicana (NOM-059-SEMARNAT-2010) under special protection (Pr) (Shaffer et al. 2008; Diario Oficial de la Federación 2010).

At the present time, 19 species of amphibians are known to occur in Aguascalientes, with many recently documented (Quintero-Díaz et al. 2008; Quintero-Díaz et al. 2014). We present data here on an additional species, *Ambystoma rosaceum*, which represents a new state record. During a field trip on 18 June 2014, with the purpose of updating the inventory of herpetofauna from Aguascalientes, RACM, GEQD and CCF found a single inactive specimen of *A. rosaceum* beneath a rock in a rocky outcrop surrounded by patches of oak forest and grassland at Mesa Montoro in the Municipality of San José de Gracia, Aguascalientes, (22.00211° N, 102.57049° W [WGS84]; 2,405 m above sea level) (Figure 1). The specimen was verified by Bradford Hollingsworth and voucher photographs were deposited in the San Diego Natural History Museum (SDSNH_HerpPC_05256; SDSNH_HerpPC_05257). The specimen was collected under the permit SEMARNAT - SGPA/DGVS/05143/14. This specimen was an adult male (SVL = 81 mm, TL =

Figure 1. Adult male of *Ambystoma rosaceum* (SDSNH_HerpPC_05256) from Mesa Montoro, San José de Gracia, Aguascalientes, México.

157 mm; 18 g.). The TL of this individual is 5 mm greater than the largest reported specimen (Lemos-Espinal et al. 2013). The oak forest was represented by *Quercus* spp., *Juniperus* spp., and the shrubs *Arcostaphylos pungens*, *Arbutus glandulosa*; the grassland by *Bouteloua* spp., *Bromus* spp. and *Festuca* spp. (De la Cerda-Lemus 2008; Siqueiros-Delgado 2008). This specimen represents the first confirmed record of the species for the state of Aguascalientes and extends the known geographic range 138 km (straight-line) SE from Valparaiso, Zacatecas, and 134 km (straight-line) E from 29 km NW Bolaños, Jalisco (Anderson and Webb 1978; Ahumada-Carrillo et al. 2014) (Figure 2).

Prior to this discovery, only one species of

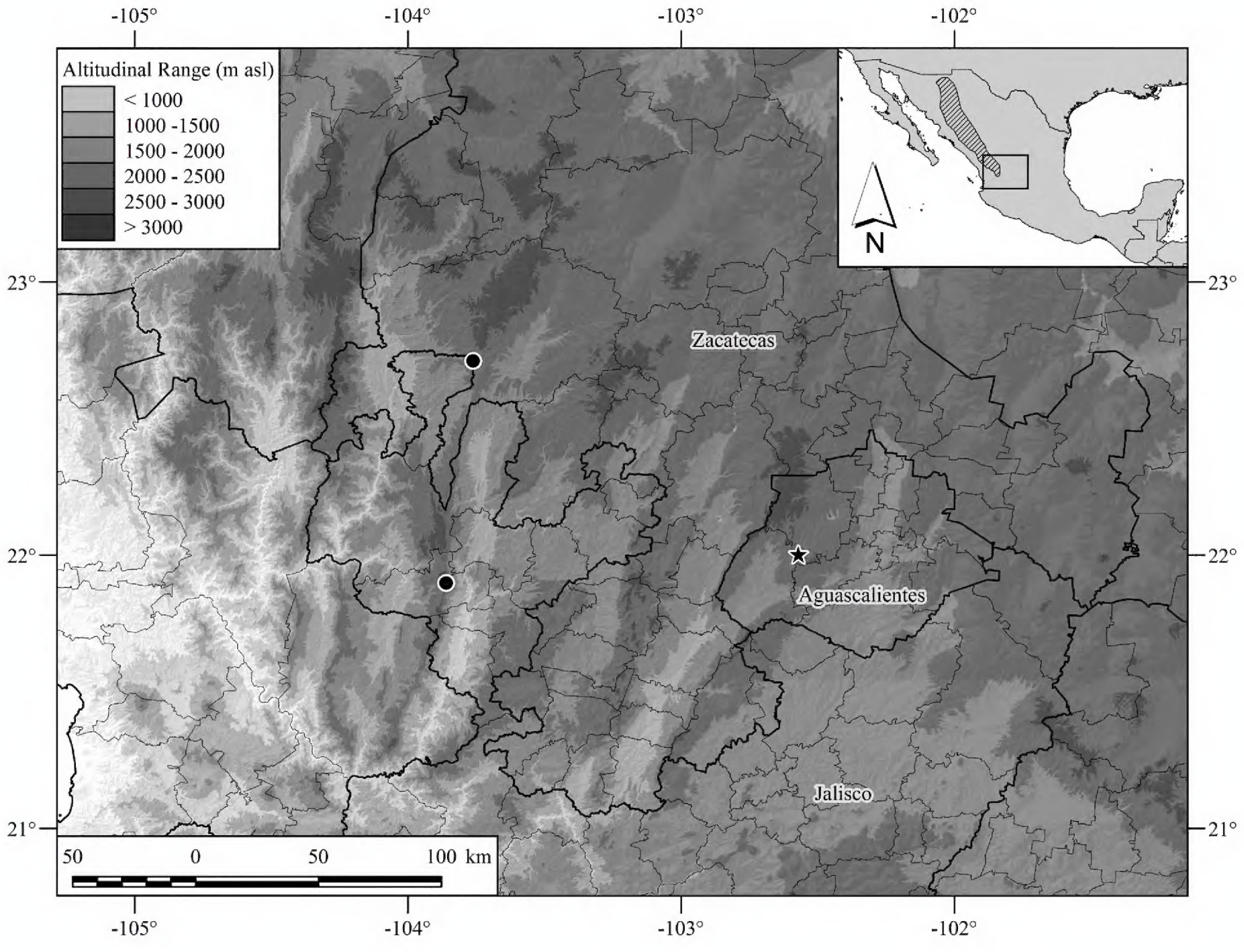

Figure 2. Collecting localities for *Ambystoma rosaceum* across its southeastern geographic range in México; star represent new record of *Ambystoma rosaceum* for Aguascalientes at Mesa Montoro, San José de Gracia, and black circles nearest recorded localities at Bolaños, Jalisco and Valparaiso, Zacatecas. The hatched area represents the IUCN Red List of Threatened Species distribution of *A. rosaceum* (Shaffer et al. 2008).

ambystomatid salamander has been recorded for the arid plains of Aguascalientes, *Ambystoma velasci* (Plateau Tiger Salamander) (Vázquez-Díaz et al. 1998). Our specimen was found in the oak forest and grassland of the Sierra Fría in habitat similar to that reported for *A. rosaceum* (Anderson 1961, 1978; Anderson and Webb, 1978; Van Devender 1973; Van Devender and Lowe 1977; Lemos-Espinal et al. 2013). The habitat in Mesa Montoro is under heavy agricultural pressure and is rapidly being transformed into crops and stables.

Ambystoma rosaceum is likely a species complex with northern and southern lineages currently recognized as two subspecies (Shaffer 1983). The northern form (*A. r. rosaceum*) is characterized by more extensive yellow spots, while the southern form (*A. r. nigrum*) is less spotted with the dorsum of the body and head nearly uniform black. The specimen from Mesa Montoro has a nearly uniform black dorsal pattern on the head and body, with a few yellow spots of its lateral sides and tail, and corresponds to *A. r. nigrum* (Durango Mountain Salamander), as would be expected based on its southern location (Shannon 1951; Shaffer 1983; Shaffer and McKnight 1996; Shaffer et al. 2008).

As noted in Bryson et al. (2008), Aguascalientes is the fifth smallest state in Mexico, but is home to a diverse and heterogeneous mixture of species of reptiles and amphibians. The high biodiversity is the result of the intersection of different physical regions, each with its own biota, and evolutionarily origins. The mountainous areas of west Aguascalientes (Sierra Fría and Sierra del Laurel) include reptiles and amphibians of the Sierra Madre Occidental and Cordillera Volcánica, resulting in the highest number of species within the state. The Sierra Fría is considered a southern extension of the Sierra Madre Occidental and is home to other species found in the cordillera, including *Barisia imbricata ciliaris*, *Crotalus lepidus klauberi* and *C. pricei pricei*. The presence of *Ambystoma rosaceum* is therefore not surprising, and with more exploration of these mountains in Aguascalientes, it is likely that additional species typical of the cordillera will be discovered (Wilson and McCranie 1979; McCranie and Wilson, 2001; Vazquez-Diaz and Quintero-Diaz, 2005).

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